

OPDE

Office of Program
Development & Evaluation
Traffic Safety Programs

**Compendium of
Traffic Safety Research Projects**

**1985 - 1995
and beyond**

March 1996



ANNOTATED BIBLIOGRAPHY OF TRAFFIC SAFETY RESEARCH PROJECTS

The National Highway Traffic Safety Administration's *Office of Program Development and Evaluation* (OPDE) conducts research and evaluation projects dealing with human attitudes, behaviors and failures (motor vehicle crashes). OPDE's focus is on drivers, passengers, pedestrians, bicyclists, and motorcyclists and their role in traffic safety. OPDE conducts basic problem identification research to identify and measure the importance of behaviors that cause crashes or increase the severity of injuries. We conduct laboratory and field studies to develop and refine countermeasures that can deter unsafe behaviors and promote safe alternatives. We design and implement evaluation projects to test countermeasure effectiveness in the real world. We also conduct scientific evaluations of large scale, on-going projects to measure the impact of public information and education, legislation, and enforcement, and their long term effects.

This compendium lists OPDE's recent and on-going research activities. Many of the completed projects resulted in products that have significantly enhanced the effectiveness of police traffic services, community traffic safety programs, driver licensing agencies, and public interest groups concerned with traffic safety. We hope that current and future projects will prove equally useful.

OPDE staff welcome the opportunity to share the results of our research with our partners and customers in the highway safety community, and with the public at large. We also are anxious to hear your thoughts concerning research endeavors that we might sponsor in the future, and on which we might collaborate -- please call us at 202-366-9591.

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Glossary of Terms

BAC Refers to either blood alcohol concentration, stated as grams per 100 milliliters (or deciliter) of blood, or breath alcohol concentration, stated as grams per 210 liters of breath.

CSS Child Safety Seats

CTSP Community Traffic Safety Program

DEC Drug Evaluation and Classification

DRE Drug Recognition Expert

DUI/DWI General (non legal) terms that refers to any criminal action of driving a motor vehicle either 1) while “illegal per se”, or 2) while either impaired by, while under the influence of (DUI), or while intoxicated by either alcohol or other drugs (DWI).

FHWA Federal Highway Administration

K - 6 Kindergarten thru 6th grade

NHTSA National Highway Traffic Safety Administration

OPDE Office of Program Development and Evaluation

PI&E Public Information and Education

RSPs Ride Service Programs -- programs that provide rides home to impaired drivers.

sTEP selective Traffic Enforcement Program

Alcohol-Impaired Driving

A) ALCOHOL IMPAIRMENT

Effects of Low Doses of Alcohol on Driving Related Skills:

A Review of the Evidence

July 1988, DOT HS 807 280

A large scale literature review was conducted on the effects of alcohol on driving skills. Evidence of impairment at BACs of .05 and higher was found with respect to reaction time, tracking, concentrated attention, divided attention, information processing, vision, perception, psychomotor performance and on various driver performance measures. In many of these functional areas, impairment was found to appear at BACs of .02 or .03. The study concluded that no "safe" limit of BAC, other than zero, can be placed on alcohol impairment of driving-related skills.

Improving Understanding of Alcohol Impairment and BAC Levels and their Relationship to Highway Accidents

May 1989, DOT HS 807 433

The study analyzed attitudes of the judicial community, including judges, prosecutors and potential jurors, concerning alcohol's impairment of driving abilities. Based on the analyses, educational materials were developed to improve the judicial community's perceptions of these matters.

Alcohol and Highway Safety 1989: A Review of the State of Knowledge

March 1990, DOT HS 807 557

This report is the fourth in a series of NHTSA-sponsored reviews of this field, beginning in 1968 with a report to Congress and subsequently updated in 1978 and 1985. The focus of this report is on new developments and trends in the field since the last review and covers documents published from January, 1983 through November, 1989. It deals with the entire spectrum of alcohol safety topics, from problem definition to problem solution. The report contains four chapters that deal respectively with the magnitude of the crash problem, the effects of alcohol on the human body and driving performance, characteristics of persons who drink and drive, and programs directed at reducing the incidence or consequences of drinking driving. The report's major conclusions and its recommendations for research are provided in an additional chapter. As part of the review, over 2,000 documents were identified and 756 were retained as references. Citations for these references are provided in two separate bibliographies.

Alcohol Limits for Drivers: A Report on the Effects of Alcohol and Expected Institutional Responses to New Limits

February 1991, DOT HS 807 692

Driving Under the Influence: A Report to Congress on Alcohol Limits

October 1992, DOT HS 807 879

These two reports were prepared in response to a Congressional mandate to conduct a study to determine the blood alcohol concentration (BAC) at or above which an individual who is operating a motor vehicle should be considered to be driving under the influence. The reports discuss scientific literature on the influence of BAC on driver performance and crashes, review the existing BAC legislation, and discuss data on the expected institutional responses to alternative limits such as .08, .04., and 00. The reports conclude that all states should consider adopting illegal per se laws at the .08 level for drivers aged 21 and older.

The BAC Estimator

1994, NTIS PB95-501938

“The BAC Estimator” is a computer program developed by NHTSA. The program estimates blood alcohol concentration (BAC) based on a person’s weight, gender, number of drinks consumed, and time over which drinking occurred. The program can be used by anyone with access to an IBM personal computer. The program is available on disk from the National Technical Information Service at 703-487-4650.

Alcohol Highway Safety Update

In progress

This study is critically examining recent highway safety literature in the U.S. and abroad to determine whether information is available that can be used to better identify target groups or problems. Topical areas include effects of different BAC levels on driver behavior, driver and vehicle characteristics associated with or leading to driving after drinking, alcohol-related crashes and violations, and environmental situations associated with or leading to drinking and driving behavior. Findings to date suggest the current literature does not provide sufficient information to assist in specific target group or problem identification and that more research is needed to accomplish such.

Crash Risk of Alcohol-Involved Driving

In progress

This project will obtain BAC measurements and other information from nearly 3,000 drivers involved in motor vehicle crashes, and from twice as many non-crash involved drivers. A case-control approach will be used: the non-crash drivers will be sampled at the scenes of crashes, typically one week after the crash occurred. Data will be analyzed to determine how crash risk increases with BAC, and also to determine how the BAC-risk relationship varies as a function of driver's age, gender, drinking experience, etc.

Driver Characteristics and Impairment at Various BACs

In progress

This project will use alcohol-dosed subjects to experimentally determine the extent to which gender, age, and drinking frequency are associated with driving impairment. The extent of individual differences in driving impairment, and the relationship of driving impairment to BAC for each group tested will also be determined. Countermeasure approaches based on these findings will be identified.

B) DRINKING-DRIVING LEGISLATION

The Effects Following Implementation of .08 BAC Limit and Administrative Per Se in California

August 1991, DOT HS 807 777

This project examined the effects of lowering the legal BAC limit from .10 to .08, and implementing an administrative per se law in California. The two new laws, and the associated publicity, reduced the number of expected alcohol-related fatalities by 12 percent in 1990. The police and courts required only minimal changes to accommodate the .08 law.

Implied Consent Refusal Impact

September 1991, DOT HS 807 765

The study examined the rates at which DWI arrestees in all states refuse to submit to a chemical test to determine how effective the implied consent laws are in encouraging test submissions, and to assess the impact of refusals on DWI enforcement and adjudication. The study concluded that there is a potential test refusal problem in much of the nation. On average, about one arrestee in five (19 percent) refuses the test. But refusal rate varies widely among states, from a low of 2 percent (in Hawaii) to a high of 71 percent (Rhode Island). The study recommends strong traffic law system action against refusers to include criminal sanctions for some "hard core" refusers.

Lower BAC Limits for Youth: Evaluation of the Maryland .02 Law

March 1992, DOT HS 807 860

The project studied the impact of new low-BAC limit legislation for drivers under 21, coupled with special publicity emphasizing penalties. Substantial reduction in alcohol-involved crashes of young drivers was found in the counties exposed to the publicity.

Evaluation of New Mexico's DWI Laws

In progress

New Mexico recently passed a package of new DWI laws which included: 1) 0.08 BAC; 2) 0.02 BAC for minors; 3) expedited license suspension; 4) mandatory sentencing for multiple offenders; 5) programs to prevent alcohol sales to minors; 6) mandatory training for alcohol retailers and servers; 7) mandatory alcohol abuse screening; and 8) alcohol treatment programs for problem drinkers. The project will determine the impact of New Mexico's new

DWI legislation on alcohol-related crashes, recidivism rates for multiple offenders, and the availability of alcohol to minor and other intoxicated persons. In addition, the project will determine whether there are changes in alcohol-related crashes (fatal, injury, and property damage), attitudes, knowledge, and awareness of DWI.

C) DWI DETECTION, INVESTIGATION, AND ENFORCEMENT

Pilot Test of Selected DWI Detection Procedures for Use at Sobriety Checkpoints

April 1985, DOT HS 806 724

This study was designed to evaluate a variety of potential screening procedures police officers could use at sobriety checkpoints to discriminate between impaired and sober drivers. The potential checkpoint screening procedures examined in the study included the horizontal gaze nystagmus test, observations of driving and stopping behavior, the driver's personal appearance, a divided attention task, and a passive alcohol sensor. The study showed that police officers were able to identify impaired drivers using the horizontal gaze nystagmus test along with their standard procedure, and that the passive sensor, divided attention task, and observations of the driver's personal appearance were useful tools in identifying drinking drivers.

Evaluation of Charlottesville Checkpoint Operations

May 1985, DOT HS 806 989

From December 30, 1983 to December 31, 1984 the Charlottesville Police Department implemented a drivers' license and sobriety checkpoint program. During this period, 94 checkpoint operations were conducted. 23,615 cars were stopped and one percent (290) of the drivers were arrested for DWI. Phone surveys of Charlottesville drivers demonstrated that over 95 percent of the drivers at risk (those who drank and also drove at night) were aware of the program. A 13 percent reduction in alcohol-related accidents provided evidence that the checkpoint program was effective in reducing accidents due to impaired driving.

The Likelihood of Acetone Interference in Breath Alcohol Measurement

September 1985, DOT HS 806 922

This technical report deals with the possibility of acetone interference in breath alcohol measurements. It reviewed more than 28,000 DWI arrest reports to evaluate the incidence of measurable levels of acetone on the breath of DWI arrestees; it reviewed the medical literature to determine the reported levels of acetone on the breath of diabetic and dieting patients; and it determined the acetone concentration required to produce minimal BAC readings on the few commercially available breath test devices that cannot distinguish acetone from ethanol. Based on the data reviewed, the report concluded that the issue of acetone presence in breath alcohol testing has no practical significance in traffic law enforcement.

Workshop on In-Vehicle Alcohol Test Devices

September 1986, DOT HS 807 145

This brief technical report describes a one-day workshop on in-vehicle alcohol test devices held on September 17, 1986 in Washington, DC. This was the first such workshop bringing together manufacturers, legislators, researchers, safety-related program personnel and the public to learn about the developments to date about in-vehicle alcohol test devices. The report describes the topics covered and includes a list of attendees.

Second Workshop on In-Vehicle Alcohol Test Devices

April 1988, DOT HS 807 299

This brief technical report describes a second one-day workshop on new developments in the state of the art of in-vehicle alcohol test devices. The workshop was held in Washington, DC on October 14, 1987. The purpose of the workshop was to serve as an opportunity for information exchange about recent developments in State and local applications of this technology. More than seventy people from outside the Federal government attended, representing a wide range of interests, perspectives and knowledge. The workshop covered five topic areas: legislation and on-going programs, recent and new developments in devices, certification testing for new devices, on-going and planned field evaluation research, and information needs and methods for exchange. The report highlighted the one-day workshop and includes a list of the attendees.

Enforcement and Public Information Strategies for DWI General Deterrence :**Arrest Drunk Driving**

December 1986, DOT HS 807 066

The project studied the impact of comprehensive enforcement programs, employing checkpoints, special squads, Preliminary Breath Testers (PBTs), etc. on public perception of the risk of being caught, and alcohol-related crash involvement. Findings indicated that intensified public information and sustained command emphasis were necessary to maximize effectiveness. Programs implemented in Clearwater and Largo, Florida proved especially effective.

Laboratory Testing of Alcoscan Saliva-Alcohol Test Strips

October 1986, DOT HS 807 059

This report describes a 1986 laboratory evaluation of Alcoscan saliva-alcohol test strips. Precision and accuracy testing was completed, as well as performance testing under extreme ambient temperatures. It was found that the high variability in BAC estimates obtained, coupled with a high proportion of false positives, suggested that this technology was not satisfactory for screening purposes in traffic law enforcement. The utility of the device, even for private citizens, was also questioned. [Note: This trade name, Alcoscan, is no longer available on the market].

Potential for Application of Corneal Retinal Potential Measurements to Detect Alcohol and Drug Use: A Report to Congress

1988, DOT HS 807 282

In response to Congress, NHTSA undertook a test of a new alcohol and drug testing technology -- one which measures and interprets the "corneal retinal potential," an electrical field created by the body's visual system. These electrical signals had been suggested as a tool for identifying persons who are under the influence of alcohol and drugs -- the rationale being that these substances affect the balance system and this upset might be reflected in corneal retinal potentials which have been used for decades to diagnose balance disorder by the medical profession. The new technology resided in a single commercial device which experienced a lapse in its developmental schedule during the NHTSA review, thus preventing actual testing in time for the report. Review of existing evidence suggests that the device can be developed to perform as an indicator of drug use, although many hurdles exist before it could be a useful tool for traffic law enforcement.

Enforcement and Public Information Strategies for DWI Deterrence:**The Indianapolis, Indiana Experience**

July 1988, DOT HS 807 434

This report summarizes a field test in Indianapolis, Indiana to achieve DWI general deterrence by combining enforcement efforts with PI&E. The goal of the project was to increase the public's perceived risk of arrest for DWI, deter them from DWI, and decrease alcohol-related crashes. Data indicated heightened awareness of DWI enforcement, increased perceived risk of arrest, and a reduction in reported drinking and driving. However, the data did not show a reduction in police reported alcohol-related crashes attributable to the program.

Laboratory Evaluation of Two Passive Alcohol Sensor Devices

1988, DOT HS 807 394

"Passive" alcohol sensing devices are designed to detect the presence of alcohol in a person's normally-expelled breath, i.e., one is not required to blow into a mouthpiece as with conventional breath test devices. NHTSA tested two such devices (Lion Alcolmeter PAS, and a modified version of the Alcolmeter, the P.A.S.) in two laboratory studies. Each device was able to discriminate among differing alcohol air samples to a useful degree under laboratory conditions. Testing confirmed the need for strict adherence to recommended operating procedures regarding storage temperatures, avoidance of crosswinds, and proper measurement distance. However, the laboratory conditions do not reflect all the factors relevant to use of these devices under operational conditions.

The Accuracy of Evidentiary Breath Testers at Low BACs

1989, DOT HS 807 415

Seven evidentiary breath testers widely used by law enforcement were subjected to laboratory testing. The study found the devices were just as accurate in the BAC range from .02 to .04 as they were when tested at .05, .10 and .15.

Assessment of Changes in DWI Enforcement Level

January 1991, DOT HS 807 690

This report summarizes the long-term experience of six law enforcement agencies with enforcement programs coupled with PI&E designed to deter DWI. In each community, DWI enforcement activity increased greatly with the advent of specially funded programs. In three sites, arrests went down after funding ceased but remained well above pre-program levels; in one site arrest volume regressed to below pre-program levels. The other two sites sought and received additional enforcement funding and were able to maintain a high arrest rate.

Laboratory Testing of a Saliva-Alcohol Test Device by Enzymatics, Inc.

December 1992, DOT HS 807 893

This study examined the accuracy of a new saliva-alcohol test device (Enzymatics, Inc. "Q.E.D.-A150") at nine different BAC levels under three temperature conditions. The findings indicated that this device appears to provide a useful means for estimating BACs from saliva samples for screening purposes. The report did not address issues related to collection of saliva samples or police field use of the devices, such as how much saliva is sufficient for a test, possible health and safety concerns for a suspect or an officer, liability concerns for an agency using the device and police training requirements. Such issues must be considered prior to reaching a conclusion regarding the practical utility and application of the device. [Subsequent to publication of this report, the device was retested by NHTSA and was listed on the Conforming Products List of devices meeting NHTSA's 1993 model specifications for alcohol screening devices.]

Detection of DWI Motorcyclists

March 1993, DOT HS 807 839

The project identified and validated fourteen good (probability 30-49 percent) and excellent (50 percent or more) visual cues of DWI motorcyclists. Among the best cues are "drifting during a curve or turn," "having trouble with dismount," and "having trouble with balance at a stop."

Experimental Evaluation of Sobriety Checkpoint Programs

August 1995, DOT HS 808 287

The project studied comparative effectiveness of well-publicized sobriety checkpoint programs differing in assigned staffing levels, and deployment strategies, and compared these checkpoint programs with a program of publicized roving patrols and with a control site. The checkpoint programs as a whole reduced alcohol-involved crashes, compared to the roving patrol program and compared to the control site. However, checkpoint program effectiveness did not appear to vary with staff size or deployment strategy (mobility) within the ranges tested in the study.

Effectiveness of Passive Alcohol Sensors

In progress

A field study was conducted to evaluate three Passive Alcohol Sensor models in both routine police and special DWI patrols to detect youthful drinking drivers. The study documented

operational strengths and weaknesses of each model, law enforcement officer attitudes toward their use, and differences in DWI adjudication rates that result from their use. Sites were

selected in three states (Arizona, New Jersey, Tennessee) that have low or zero BAC laws for under 21 age drivers. Each law enforcement agency used each passive sensor for 2 months, for a total of 6 months of field data collection.

Evidentiary Breath Testing Model Performance Specifications and Product Testing

Continuing program

In collaboration with the Transportation Systems Center (TSC), NHTSA has developed a set of model performance specifications for evidentiary breath testing (EBT) devices. As manufacturers develop new EBT devices, TSC tests them to determine their compliance with the model specifications. Semiannually, NHTSA publishes an updated list of all devices that conform to the model specifications. Contact Jim Frank at 202-366-5593 for a copy of the current Conforming Products List.

Develop and Validate a Standardized Field Sobriety Test for Lower BAC Limits

In progress

Many states have moved (and more will in the future) to BAC limits below .10. Thus, the current standardized field sobriety test (SFST) that is used by law enforcement officers at roadside may no longer be applicable. This project is developing and validating a standardized field sobriety test to determine whether individuals are above or below BACs of .08 and .04.

In-Vehicle Videotaping of DWI Suspects

In progress

This study is evaluating in-vehicle videotaping of alcohol-impaired drivers by police agencies. It includes an operational evaluation in several states (New York, North Dakota, Texas, Utah, and West Virginia) to document exemplary police agencies that have successfully used in-vehicle videotaping in their enforcement of alcohol-impaired laws. There is also an outcome evaluation of three police agencies (Wisconsin State Patrol; San Diego; Suffolk County, New York), which is documenting conviction rates, guilty pleas, and evidence of police behavior.

DWI Detection at BACs Below .10

In progress

The project is being conducted to identify and validate visual cues police can use to detect drivers at BACs below .10 (e.g., .08, .04, and if possible, .02), both on-the-road and after traffic stops to establish reasonable suspicion. The project will include a field test in which drivers exhibiting the cues will be stopped and asked to submit to voluntary breath tests to determine their BACs.

Laser Alcohol Detection

In progress

This project will develop and test (under laboratory conditions) a prototype instrument that will use an infrared laser beam to screen vehicles at checkpoints, stop signs and other traffic

environments. The instrument will detect alcohol vapor within the passenger compartment of the vehicle.

Automated Procedures for Identifying Alcohol-Impaired Drivers at Checkpoints

In progress

The project will develop high-technology sensors capable of measuring driving approach behaviors as vehicles enter checkpoints. Sensors that appear potentially effective will be tested under closed-course controlled conditions. If those test results are positive, a system that includes those sensors will be developed and field tested (in a subsequent study) to assess whether it improves police detection of drinking drivers at actual checkpoints.

Improved Checkpoint Screening Protocol

In progress

The project will develop and field test improved means of rapidly screening drivers stopped at checkpoints to identify those drivers who may be impaired. The improved protocol may include visual cues, effective interview procedures, and tests that can be administered while the driver is seated in the vehicle.

Assessment of Enforcement of BAC Limits

In progress

The project will use system analytic methods to identify problems impacting enforcement and adjudication of various BAC limits, including limits that may apply to all drivers (e.g., .10, .08) and limits that may apply to specific groups (.02 for underage drinkers, .04 for commercial vehicle operators). The project will assess the effects of each identified problem, i.e., the degree to which the problem limits the performance of the enforcement/adjudication system, and identify and assess alternative solutions to the significant problems.

D) DWI PROSECUTION AND ADJUDICATION

Assessment of Citizen Group Court Monitoring Programs

March 1987, DOT HS 807 113 (Report);

March 1987, DOT HS 807 112 (Manual -- Planning for Court Monitoring)

This was a study of two well-organized citizen group court monitoring programs. The two programs were the Oak Ridge, Tennessee RID program and the Douglas County (Omaha), Nebraska MADD program. The results showed that a well-organized court monitoring program implemented by an organized group can affect the handling of DWI offenders by both the prosecution and judges hearing these cases. In both sites the presence of a court monitor led to somewhat stricter treatment of DWI offenders.

An Evaluation of the Elimination of Plea Bargaining for DWI Offenders

November 1989, DOT HS 807 435

This was a study of the effects of eliminating plea bargaining for DWI on the adjudication system to determine if it hindered court operations (e.g., increased delays, court processing time, requests for jury trials). Two case study sites were used, Fort Smith, Arkansas and Louisville, Kentucky. The results showed that it was feasible to greatly reduce plea bargaining

for DWI without causing major disruption of the courts. The reduction in plea bargaining was associated with more severe sanctions imposed on the convicted offenders.

Impact of Court Monitoring on DWI Adjudication

December 1990, DOT HS 807 678

This was a study of the impact of court monitoring on court dispositions (guilty, not guilty, and dismissed) and case outcomes (jail, fine and license suspension) between monitored cases and non-monitored cases in Maine during 1987 (9,137 cases). The results demonstrated that court monitoring is an effective tool in affecting the adjudication process. In the presence of court monitors the conviction rates of DWI offenders are higher and their case dismissal rates are lower than those of drivers not court-monitored. Furthermore, once convicted, the likelihood of a jail sentence is higher and the length of the jail sentence is longer for court-monitored DWI drivers than for non-monitored drivers.

Evaluation of Two Prosecution and Adjudication Training Programs

In progress

This study will evaluate the impact of two new NHTSA-sponsored training courses, "Prosecution of Driving While Under the Influence" and "Prosecuting the Drugged Driver." Measures such as the proportion of arrests prosecuted, conviction rates, dismissal rates etc. will be used.

E) COUNTERMEASURES AND SANCTIONS

An Evaluation of Hardship Licensing for DWIs Volume 1: State Hardship Licensing Practices

July 1986, DOT HS 807 060

This study examined and documented State practices on the issuance and administration of hardship licenses for DWI offenders.

Deterrent Effects of Mandatory License Suspension for DWI

June 1987, DOT HS 807 138

The study examined Wisconsin's 1982 law mandating three to six month license suspension for first offense DWI. Results showed reductions in subsequent convictions and crashes among drivers convicted after the law went into effect (i.e., specific deterrent effect), and also a substantial reduction in alcohol-related crashes among the total driving population (general deterrent effect). The study concluded that mandatory license suspension is an effective legal sanction against drinking and driving. Also, a substantial reduction in alcohol-related crashes occurred following passage of the law.

Field Evaluation of Jail Sanctions for DWI

April 1988, DOT HS 807 325

This study evaluated Tennessee's two-day mandatory jail sanction for first-offense DWI on general deterrence, special deterrence and the operation of the drinking-driver control system. The major finding of this study was that the jail sanction had an initial effect on drunk-driving recidivism in Tennessee, but no measurable effect on alcohol-related crashes.

An Evaluation of Community Service as a Sanction for DWI: The Baton Rouge Community Service Work Program

October, 1987, DOT HS 807 200 (Volume I: Executive Summary); DOT HS 807 201 (Volume II: Final Report)

This study examined the general and specific deterrence effects of the use of community service as a sanction for DWI and its impact on the adjudication system (i.e., enforcement, prosecution and judicial) in Baton Rouge, Louisiana. There was little evidence that community service served as an effective deterrent to drinking and driving, or reduced recidivism of convicted offenders, nor was it perceived by the driving public as a strong deterrent to drinking and driving. It was concluded that community service should not be used in lieu of more effective sanctions (e.g., license suspension).

Potential for Application of Ignition Interlock Devices to Prohibit Operation of Motor Vehicles By Intoxicated Individuals: A Report to Congress

May 1988, DOT HS 807 281

This report contains a historical overview of the interest in ignition interlock devices and of the early development and research on different types of devices. It provides a description of current technology, its use, the results of laboratory testing of current devices, a description of current state legislative and judicial activity, a discussion of the problems this technology must overcome, and an assessment of the effectiveness and potential for application in preventing alcohol impaired driving.

Follow-Up Evaluation of Wisconsin's 1982 Drinking and Driving Law

September 1988, DOT HS 807 377

A prior study showed that Wisconsin's 1982 law mandating short-term license suspensions for first offense DWI result in a substantial reduction in alcohol-related crashes and a reduction in repeat DWI offenses by convicted offenders. This study was designed to extend the data collection beyond the time frame of the earlier study and found that the previously reported effects had not diminished over the longer time period.

Assessment of Multiple DWI Offender Restrictions

December 1989, DOT HS 807 615

The study examined innovative approaches for reducing recidivism among repeat offenders, including special detention centers, diversion programs, electronic monitoring, ignition interlock systems, intensive supervised probation, publishing offenders' names, special license tags, victim restitution and weekend intervention. The study found that these approaches had

many appealing features from a procedural or administrative perspective. However, adequate information on program effectiveness in reducing recidivism was not available.

Users' Guide to New Approaches and Sanctions for Multiple DWI Offenders

December 1989, DOT HS 807 571

This guide describes nine non-traditional approaches for reducing recidivism among multiple DWI offenders: dedicated detention facilities, diversion programs, electronic monitoring, ignition interlock systems, intensive probation supervision, publishing offenders' names, special license tags, victim restitution, and weekend intervention programs. Information was presented on 33 programs that use these approaches including the number and types of offenders served, staffing requirements, costs, funding sources, program requirements, and effectiveness. Findings indicated that many of these programs have appealing features, e.g., many cost less than jail, and can relieve jail overcrowding, but reliable data on post-program recidivism is rarely available.

The Effects of Implementing and Publicizing Administrative License Revocation in Nevada

April 1990, DOT HS 807 600

Nevada law calls for confiscating the drivers' licenses of DWI arrestees who either refuse the chemical test or have BACs of .10 or more. In this study, a public information campaign was designed and implemented to emphasize the law and its strict enforcement. A subsequent survey revealed increased awareness of the sanction and reduced (self-reported) drinking-driving behavior. Alcohol-related crashes were also found to have dropped by 12 percent during the study period.

Cost-Benefit Analysis of Administrative License Suspensions

January 1991, DOT HS 807 689

Cost outlays and economic benefits associated with Administrative License Suspension laws were studied in Nevada, Mississippi, and Illinois. In all three states, increased revenues from license reinstatement fees more than offset costs associated with implementing the law. Moreover, reductions in crash-related costs were well over 100 times the cost of implementation.

Alcohol Ignition Interlock Service Support

December 1992, DOT HS 807 923

This brief technical report was produced as a companion to "Model Specifications for Breath Alcohol Ignition Interlock Devices" (BAIIDs) separately published in the Federal Register on April 7, 1992 (57 FR 11772-11787). The report provides the authors' recommendations for establishment of a comprehensive State BAIID program including suggested procedures for ensuring the quality control of BAIID instruments in the field. It concluded that once a program has been implemented, detailed management procedures and careful record keeping are required to ensure that BAIID devices accomplish their objective of preventing impaired driving by drivers required to install BAIIDs on their vehicle.

Review of the Literature Evaluating the Effect of Countermeasures to Reduce Alcohol-Impaired Driving

October 1991, DOT HS 808 023 (Volume I - Synthesis)

October 1991, DOT HS 808 024 (Volume II - Individual Analyses and Assessments)

This two-volume report documents the results of an extensive review and analysis of impact evaluations of alcohol-traffic crash countermeasures. Evaluations published since 1980 are covered by the review. Volume I presents a synthesis of the findings on the impact of three major classes of countermeasures: 1) restricting alcohol availability, 2) deterring and incapacitating drunk drivers, and 3) treating and rehabilitating drunk drivers. Volume II contains summaries of the assessments of individual evaluations.

Assessment of Publicized Insurance Sanctions as a DWI Countermeasure

1994, DOT HS 808 119

The objective of this project was to determine the effectiveness of a well-publicized insurance sanctions program focussing on heavy insurance penalties for DWI conviction. Findings indicated the test program, conducted in New Hanover County, North Carolina, did not make a significant number of drivers aware of the insurance penalties. Many of those who were aware of the insurance sanctions program reported they drove less after implementation of the program, but the sample size was too small to draw definitive conclusions. If more effective ways could be implemented for publicizing information about this sanction, the results from this study indicate that it might prove to be an effective deterrent.

Assessment of Impoundment and Forfeiture Laws for Drivers Convicted of DUI, Phase II Report: Evaluation of Oregon and Washington Vehicle Plate Zebra Sticker Laws

April 1994, DOT HS 808 136

This study assessed the impact of vehicle plate sticker laws on drivers convicted of DUI in Oregon and Washington. In these states, upon arresting a motorist for Driving on a Suspended License (DWS), officers could place a zebra sticker over the annual portion of the license plate of the offender's vehicle on the spot. Subsequently, any officer could stop these stickered vehicles and request that the driver produce a valid license. Drivers whose licenses were suspended, and at risk of getting a zebra sticker if caught driving, showed a 33 percent reduction in moving violations and a 23 percent reduction in crashes after the zebra law implemented in Oregon. The study suggests that if publicized and enforced, the zebra sticker law can have positive traffic safety effects (in terms of reduced or more careful driving) on suspended DUIs and suspended DUI drivers convicted of DWS who receive a zebra sticker.

Evaluation of Community Service as a DWI Deterrent

In progress

Community service sentencing has been and is used as an alternative to jail in the punishment of DWI. But little is known about what kinds of community sentencing programs are being used throughout the states and about the effectiveness of community service sentencing as a deterrent to DWI. A previous OPDE study showed that community service should not be used

in lieu of more effective sanctions such as license suspension. This project will determine what

community service sentencing programs for DWI are being conducted in each of the states. In addition, the project will determine how effective selective community service sentencing programs are as a deterrent to DWI.

Evaluation of Alternative Programs for Repeat DWI Offenders

In progress

This project is evaluating the effectiveness of three separate programs for repeat DWI offenders: electronic monitoring with home detention in Los Angeles County, California; intensive probation supervision in Milwaukee, Wisconsin; and weekend intervention in Dayton, Ohio. Information on recidivism, public awareness and program operations are being collected for each program.

Determine the Reasons for Repeat Drinking and Driving

In progress

This study involves in-depth interviews with repeat offenders in Phoenix, Arizona; Pittsburgh Pennsylvania; and the 18th Judicial District, Colorado (around Denver) to determine why the individuals continue to drink and drive. The interviews will be content-analyzed, and countermeasure recommendations will be developed.

Develop and Test Countermeasures for Repeat DWI Offenders

In progress

This study will use data collected in previous NHTSA research and will develop and field test countermeasures that are designed specifically for repeat offenders.

Develop and Test Countermeasures for Specific Groups of Drinker-Drivers

In progress

Developing and implementing countermeasures for specific, targeted groups of drinking drivers is becoming more and more important. Two studies are underway to develop and test countermeasures for selected groups of impaired drivers. These studies involve the development and review of multiple countermeasures ideas. The most promising countermeasures will then be field tested in several sites across the country to determine their effectiveness. Data will be gathered on several measures, including the target group's attitudes, awareness, and behavior change.

F) DRINKING DRIVER ATTITUDES AND BEHAVIORS

Feasibility Planning Study for a Behavior Database Volume II: Appendix A Summary Information on the Drinking and Driving and Occupant Restraint Surveys

April 1987, DOT HS 807 122

The objective of this project was to determine the feasibility of, and the general requirements for, a centralized database on driver behavior and attitudes related to drunk driving and

occupant restraints. This volume contains descriptive information about each of the surveys collected in the project.

National Survey of Drinking and Driving Decision Making

1992

A national telephone survey was conducted to determine the basis upon which persons make drinking and driving decisions, and assess how the BAC limit fits into this framework. Core sections of the survey collected information on specific instances where subjects drank away from home, drove impaired, and avoided driving impaired. Key findings included the central role of pre-planning in avoiding impaired driving, and the disproportionately high involvement of problem drinkers in impaired driving. Data from the survey provided key input to "Driving Under the Influence: A Report to Congress on Alcohol Limits" (DOT HS 807 879).

National Survey of Drinking and Driving Attitudes and Behavior

1995, DOT HS 808 202

This report covers the first two national surveys (1991 and 1993) conducted by NHTSA to track changes in drinking and driving attitudes and behaviors. The surveys showed small changes from 1991 to 1993. The proportions of the public that drive after drinking (28 percent) and that place themselves at risk by riding with an impaired driver (15 percent) remained constant in the two surveys. The large majority of the public remained concerned about drinking and driving, although there was a slight decline in the perception of the need to do something about the problem. The majority of the public continues to support more severe penalties and strongly favors the use of sobriety checkpoints.

Why People Drink and Drive: The Bases of Drinking and Driving Decisions

March 1995, DOT HS 808 251

This project examined the decision process that individuals go through when deciding whether to drive after drinking. Six hundred individuals who admitted to driving while impaired were interviewed about their most recent drinking-driving experience. The study revealed that heavy drinking often arises in response to subtle encouragement from friends. For example, hosts may give the impression that they expect consumption and do not appreciate moderation. Or friends may promote heavy drinking to feel more comfortable in their own over-consumption. In addition, the study found that a willingness to allow impaired friends to drive often arises from the need for a ride in the absence of an available designated driver.

Lessons Learned from Public Health Campaigns and Applied to Anti-DWI

Norms Development

May 1995, DOT HS 808 273

The objective of this study was to learn how social norms can be established for anti-DWI behavior. Experts from several health fields (such as anti-smoking and anti-substance abuse) were interviewed to learn about the norms-change process in their areas. The discussions focused on how and why health behaviors change, and which approaches are applicable for

detering drinking and driving behavior. For example, the experts noted that health campaigns

were effective when their messages were publicized in a varied and sustained manner. Legislation and enforcement activities also emphasize the seriousness of specific issues.

Motivating Anti-DWI Behavior Using Existing Values

October 1995, DOT HS 808 321

This project examined individuals' existing values and how they can be used to deter drinking and driving behavior. Data was collected through interviews and focus groups with 18-29 year-old drivers. The objective was to learn what is important to individuals in this age group, and use that information when developing anti-DWI countermeasures. Family and friends topped the list of things most valued in life. The study also showed that participants had well developed attitudes towards impaired driving. They said that drinking and driving is dangerous and wrong. However, most admitted to driving while impaired on occasion, and appeared to feel that this is morally different than driving drunk habitually.

Develop and Test Norms Programs

In progress

To make greater gains in solving the DWI problem, we must go beyond our current approaches. This study will use data collected in previous NHTSA research and will develop and field test programs designed to change people's norms regarding drinking and driving.

National Survey of Drinking and Driving Attitudes and Behavior: 1995

In progress

This is the 3rd biennial survey on drinking and driving and will enable NHTSA to begin focusing on trends in the nature and extent of the drinking and driving problem. These data will be used to assess whether the nature of the problem has changed, and if so, how. Topic areas include personal consumption, drinking and driving behavior, intervention measures, perceived threats of drinking drivers, perceived consequences of drinking and driving, and perceptions regarding legal limits. The survey was conducted on a national probability sample of 4,000 individuals during the summer of 1995. Data will be used primarily to guide programmatic activity.

Survey to Identify New Target Groups and Situations

In progress

In 1994 NHTSA administered a national survey using a large sample (N=7,500) of drivers who drink alcohol to determine the specific characteristics of the people and situations associated with drinking and driving. Data analyses are underway to identify drinker-driver targets. These new, more detailed targets will enable the development of more focused and effective countermeasures.

G) PREVENTION

Determinants of Youth Attitudes and Skills Towards Which Drinking/Driving Prevention Programs Should be Directed

November 1985, DOT HS 806 903 (Volume 1: The State of the Art in Youth DWI Prevention Programs);
DOT HS 806 904 (Volume 2: An In-Depth Review of Twelve Youth DWI Prevention Programs)

In 1984 NHTSA sponsored a multi-component research project that would develop recommendations for improving youth drinking/driving prevention programs. Major goals of this research included exploring the underlying assumptions, premises, objectives, activities and outcomes of existing programs nationwide that are aimed at encouraging youth to take responsible action to avoid drinking and driving. Project activities included conducting a review of programmatic, conceptual, and empirical literature; conducting a review of programs nationwide to provide an overview of existing youth DWI programs; and conducting on-site visits to youth DWI programs. Volume 1 contains a matrix of the DWI prevention program characteristics for programs included in the data analysis, as well as a description of the methodology, analyses, and results of the program examination and site visits. Volume II provides a description of the site visits. Program planners and others interested in DWI prevention might find Volume II helpful because it highlights the successes and difficulties encountered by prevention programs.

Review and Assessment of Designated Driver Programs

February 1987, DOT HS 807 108

This study surveyed more than forty public drinking establishments and private membership organizations known to have designated driver programs. Results indicated that relatively few patrons participated in the programs in most of the establishments. However, the study also found that there are some simple and inexpensive actions that establishments can take to increase participation.

Development and Field Test of a Responsible Alcohol Service Program

1987, DOT HS 807 221 (Volume I: Research Findings);
1987, DOT HS 807 222 (Volume II: Server Education Program Materials);
1989, DOT HS 807 449 (Volume III: Final Results)

A Program of Responsible Alcohol Service was developed to enable servers and managers in establishments selling alcohol to exercise responsibility in order to prevent injury to, and by, intoxicated patrons. The Program deals with the need for responsible alcohol service, preventing intoxication, identifying signs of intoxication, and preventing driving by intoxicated patrons (Volume I). The program materials include training modules for servers (3 hours) and managers (6 hours). A training session is provided for those who wish to administer the program to other groups. Four video presentations, totaling 62 minutes, are part of the program (Volume II). The Program was field tested with 1,079 servers and managers from 100 different establishments in eight different sites across the U.S. The Program yielded improvement in knowledge and attitudes as well as self-reported serving practices and policies at all sites. However, increases in observed intervention with patrons feigning intoxications (skills) were confined to 5 out of 8 sites (Volume III).

A Directory of Ride Service Programs

July 1987, DOT HS 807 146

January 1988, DOT HS 807 291 (Users' Guide)

This directory lists 325 Ride Service Programs (RSPs) from 44 States and the District of Columbia that provide intoxicated drivers with a safe alternative ride home. Many of the entries summarize key program features such as who sponsors the program, whether the program operates on holidays versus year-round, whether the rider's car is transported, and the type of transport used (cab, bus, tow truck, etc.) All the entries provide the information needed to contact program representatives for additional information. A companion document called "A User's Guide to Ride Service Programs" describes 52 ride service programs in detail, including information regarding their staffing and operation, procedures for delivering rides, funding, and the kinds of problems that may be encountered along with possible solutions for them.

The Assessment of Ride Service Programs as an Alcohol Countermeasure

January 1988, DOT HS 807 290

From the 325 RSPs identified in the 1987 NHTSA study, fifty-two programs were selected for in-depth examination. The study concluded that such programs are widely available, relatively easy to operate and frequently used. However, the study was not able to reach conclusions regarding program effectiveness in reducing DWI.

Identification of Parental Program Structures for Deterring Adolescent Drinking and Driving

November 1989, DOT HS 807 555 (Volume 1: Report of Focus Groups with Parents); DOT HS 807 556 (Volume II: Identification of Parental Program Structures for Deterring Adolescent Drinking and Driving -- Literature Review)

The objective of this study was to determine the feasibility of developing programs to assist parents in preventing driving after drinking among their children. To determine the extent to which information was already available on developing prevention programs for parents, a literature review was conducted. This activity was followed by a series of focus groups with parents of adolescents to fill in information gaps. The results from these activities were used to generate a list of possible topics and delivery systems for parent prevention programs, and opinions about these options were obtained from parents in an additional focus group. Focus group findings were not encouraging: although parents indicated youth drinking-driving is a very serious problem, they did not appear willing to spend much time participating in prevention efforts for their children. Details about the literature review appear in the companion Volume II report.

Host and Server Determination of Alcohol Intoxication Level

1990, DOT HS 807 639

The goal of this project was to identify a set of visible impairment cues that could be used to generate accurate estimates of blood alcohol level. An Impairment Estimation Procedure (IEP) was developed from a set of alcohol impairment cues found to be associated with

measured BACs. Twenty-four cues, representing social behavior, physical appearance, and motor

coordination, obtained by observing 149 drinkers in social situations, were divided into two categories: those corresponding to moderate impairment (BAC=.04-.08) and those corresponding to severe impairment (BAC>.08). Observers using the IEP estimated impairment more accurately than those not using it, when impairment was manifest in both breath tests and field sobriety measures. The improved accuracy lay mainly in identifying moderately-impaired drinkers.

Alcohol Beverage Server Liability and the Reduction of Alcohol-Related Problems: Evaluation of Dram Shop Laws

June 1990, DOT HS 807 628 (Summary Report)

June 1990, DOT HS 807 629 (Final Report)

This project was an evaluation of the potential for legal liability of alcoholic beverage servers to stimulate preventative serving practices and thus reduce alcohol-related traffic crashes. The study found that in states with higher liability exposure for servers there was more publicity about such liability, greater awareness and concern among licensed establishment owner/managers, and differential serving practices in comparison to states with low liability. A time series analysis in one state, Texas, which had experienced a dramatic change in server liability (from relatively little to very high) and significant accompanying publicity, had a significant drop in alcohol-related crashes.

Evaluation of the Host Responsibility Program

September 1988, DOT HS 807 380

A brief (less than two hours) instructional program was developed to encourage and assist hosts to provide responsible service of alcohol. The program was evaluated through pre- and post-program administrations of knowledge, attitude and self-reported behavior questionnaires. Small but significant improvements in all three areas were found. With regard to improvements in reported behaviors, most involved better alcohol service and party-giving practices, rather than improved actions in dealing with intoxicated guests.

Determine Feasible and Acceptable Age 21 Support Programs

September 1990, DOT HS 807 667

This project identified programs which are feasible, acceptable, and effective in deterring adolescent drinking. Information was collected on 22 prevention programs. The data was then examined by a panel of experts, and by focus groups consisting of 11- through 20-year olds. The panel and youth agreed that the following programs would be most effective: 1) programs that punish youth who drink by suspending their driver's license or postponing the age at which they become eligible to receive a license, and 2) improvements in the design and distribution of driver licenses in order to reduce the use of fraudulent identification to obtain alcohol.

Responsible Alcohol Service Programs Evaluation

June 1991, DOT HS 807 779

TEAM (Techniques for Effective Alcohol Management) is a responsible alcohol service program developed for public assembly facilities. Case studies were conducted of TEAM programs in seven Major League Baseball facilities. Results of the study showed that the program was relatively easy to implement and appeared to have contributed to a decline in alcohol consumption and alcohol-related problem behavior. TEAM also produced improvements in the general climate within the facilities.

Evaluation of the TEAM Train-the-Trainer Program

May 1992, DOT HS 808 057

This study evaluated the effectiveness of Techniques for Effective Alcohol Management (TEAM) Train-the-Trainer workshops. The major findings were that 79 percent of the workshop participants were able to establish various components of the TEAM program at their facility; 75 percent reported that important alcohol service policies and procedures had been identified and changed; 58 percent said that some that some level of TEAM training for facility employees had been implemented; and 45 percent said the PI&E efforts regarding drinking and driving behavior had been expanded.

Assessment of Year-Round and Holiday Ride Service Programs

January 1995, DOT HS 808 203

RSPs are used across the country to provide rides home to impaired drivers. These programs typically operate on holidays and transport drivers from bars back to their homes. This project examined the effectiveness of two RSPs, one year-round program and one holiday (Christmas-New Year's program). Large proportions of the general public recognized each of the RSPs. And although the data indicated that individuals tend to use other alternatives more often (such as designated drivers and asking others for a ride), RSPs do appear to prevent some individuals from driving after drinking.

Evaluation of Youth Peer-to-Peer Impaired Driving Programs

August 1995, DOT HS 808 309

This study evaluated youth peer-to-peer programs (Students Against Driving Drunk {SADD}) to assess the programs' impact on reducing youthful impaired driving and underage drinking behaviors. Twelve high schools in Arizona, Ohio, and Wisconsin participated. Results indicated that students attending schools with active programs were exposed to substantially more activities against drinking and driving and were more likely to hold attitudes reflecting positive reasons not to use alcohol.

Designated Driver Program Field Test

In progress

A field test of a community-based designated driver program (DDP) in Haverhill, Massachusetts was conducted. In addition to developing a Users' Guide for how to set up a community-based program, a full-scale evaluation was completed, including a before and after

questionnaire administered in both the test community and a control community. Preliminary findings indicate that more than half of the test community was aware of the program; self-reported usage rates among service establishment patrons was 54 percent, and the community's citizens reported using designated drivers about 50 percent of the time in the past year.

H) MISCELLANEOUS ALCOHOL RESEARCH

A Typological Analysis of California DUI Offenders and DUI Recidivism Correlates

January 1986, DOT HS 806 994

This study examined 7,316 DUI offenders in California. The purposes of the study were to develop DUI offender typologies, and to determine the extent to which recidivism and treatment compliance can be predicted from driver record, criminal record, demographic, and psychometric variables. According to the report, the resulting low level of recidivism prediction is not adequate to tailor treatment of sanctions to individuals. Also, it appears that most convicted DUI offenders are problem drinkers, including a substantial proportion of first-time DUI offenders. Therefore, first offenders could be considered a high safety risk deserving of more severe sanctions.

Assessment of Classification Instruments Designed to Detect Alcohol Abuse

December 1988, DOT HS 807 475

This report identified and evaluated instruments which assessed substance abuse problems in DWI offenders. The study indicated that of the reviewed available instruments, few were developed in a methodologically sound way, and some of these were older instruments which had not been modified to accommodate changes in the population served. Other, newer, instruments were not adequately validated.

Anti-Drunk Driving Program Initiatives: A Perspective Assessment of Future Program Needs

March 1990, DOT HS 807 643

A report on a study to determine whether the various recommendations of the 1983 Presidential Commission on Drunk Driving had been implemented five years later. The results indicated that substantial progress had been made in implementing many of the legislative changes (raising the minimum drinking age, victim compensation legislation, administrative license revocation, mandatory safety belt laws), increasing public awareness of the problem, etc. The study cautions that while considerable progress has been made, much remains to be done.

Evaluation of 410 Alcohol Countermeasure Grant Program

In progress

The goal of this project is to determine how the 410 qualifying process is accomplished, and which governmental and private organizations participate and are essential to this process. In addition, the project will determine the impact of the 410 qualifying process on the incidence

of impaired driving. The project will document the 410 qualifying process in all (or selected) 410 states. In addition, the project will compare 410 States to non-410 States in terms of alcohol-related crash rates vis-a-vis the process of qualifying (i.e., do 410 states have lower alcohol-related crash rates than non-410 states?) and in terms of 410 program activities for states receiving 410 grant funding. The study will involve both an administrative evaluation of the qualifying process and will determine the impact of the program on alcohol-related crashes.

Problem Drinker Assessment Instrument Validation

In progress

This study is validating five commercially available problem-drinker assessment instruments widely used by the courts for DUI offenders. The validation criteria used were a set of characteristics of people that an expert panel agreed identified problem drinkers who should be referred for treatment. Data from 609 subjects were collected in Boston and Pittsburgh. The instruments include the Michigan Alcohol Screening Test (MAST); the Driver Risk Inventory (DRI); the Mortimer-Filkens (MF); and Cut Down, Annoyed, Guilty, Eye Opener (CAGE), and the Substance Abuse Life Circumstances Evaluation (SALCE).

II. Drug-Impaired Driving

A) DRUG USE AND IMPAIRMENT

The Incidence of Driving Under the Influence of Drugs 1985: An Update of the State of Knowledge

December 1985, DOT HS 806 900

This project reviewed literature published from 1980 through 1985 to update a previous "state of knowledge" report produced in 1980. The project found that drugs other than alcohol are detected in 10 percent to 22 percent of accident-involved drivers, and that drugs alone (i.e., without alcohol) are found in 3 percent to 15 percent of accident-involved drivers. It was also found that the majority of drug-using drivers have high levels of alcohol in combination with the drugs. The reviewers cautioned that most of the available studies did not provide unbiased representative samples of accident-involved drivers, and tested for only a limited sample of drugs.

Feasibility Assessment of Chemical Testing for Drug Impairment

September 1985, DOT HS 806 920

The study examined existing data on the concentrations of a variety of drugs in drivers to assess the feasibility of establishing chemical tests to detect drug-impaired driving. It was concluded that urine testing would be suitable for establishing the need to obtain and analyze blood specimens for THC (the active ingredient in marijuana), while saliva offers more promise for presumptive screening for other drugs. The study also found that, at the present state of knowledge, blood is the only body fluid that may serve in a limited manner to relate drug levels to impaired driving.

Use of Controlled Substances and Highway Safety: A Report to Congress

March 1988, DOT HS 807 261

The report reviewed the literature on the relationship of drug use to highway safety. It was found that substantial numbers of people sometimes drive after using drugs other than alcohol, and between 10 and 22 percent of crash-involved drivers may have used drugs, often in combination with alcohol. Drugs appearing to have the greatest potential to be serious highway safety hazards were tranquilizers, sedative hypnotics, and marijuana.

Test Drivers in the Daimler-Benz Driving Simulator with Drivers Under Diphenhydramine

January 1991, DOT HS 807 668

This study investigated the influence of diphenhydramine on driving performance as measured in the Daimler-Benz Driving Simulator. Subjects received either a placebo, medium, or high dosage of diphenhydramine. The test drive involved standardized driving tasks which either required a normal response or represented an emergency situation. No significant differences were found between the three groups. For all tasks, the individual difference within groups

were higher than differences between the groups. Based on the results, the hypothesis was derived that compensatory mechanisms may take effect in particular dosage ranges.

The Incidence and Role of Drugs in Fatally Injured Drivers

1992, DOT HS 808 065

This study examined drug presence in blood specimens from nearly 2,000 drivers killed in motor vehicle crashes. Alcohol was found in slightly more than half of the specimens, other drugs in about 18 percent of the specimens. In about two-thirds of the drug cases alcohol (usually at high levels) was also present. Analysis of crash responsibility suggested that drugs other than alcohol are most likely to present a hazard when combined with alcohol or other drugs.

Marijuana and Actual Driving Performance

1993, DOT HS 808 078

Volunteer subjects participated in several sessions in which they were dosed on alcohol, marijuana, or a placebo, then drove motor vehicles in various controlled on-road traffic situations (e.g., closed interstate highway). Dual-controlled vehicles were used, and a researcher was always along to take control if warranted. Marijuana was found to have a performance impairment effect equivalent to an alcohol BAC level between .04 and .08 only in lane maintenance performance measures.

Update of the Literature on Drugs and Highway Safety

In progress

This study focuses on recently published and ongoing work related to drug involvement in motor vehicle crashes and impaired driving arrests. A considerable body of such work has been initiated since the publication of the Report to Congress in 1988.

Drug Involvement in Non-fatal Injury Crashes

In progress

This study will analyze blood specimens from approximately 1,000 drivers injured in crashes in and near Rochester, New York. Responsibility analysis will be employed to assess the causal role of drugs in those crashes. The results will be compared to a similar study conducted in 1982 at a Rochester hospital.

B) THE DRUG EVALUATION AND CLASSIFICATION (DEC) PROGRAM

Identifying Types of Drug Intoxication: Laboratory Evaluation of a Subject Examination Procedure

May 1985, DOT HS 806 753

The project studied the ability of drug recognition experts (DREs) to determine if volunteer subjects were impaired and if so, identify the type of drug the subject had ingested. Results indicated that the DRE examination procedure was basically valid: subjects assessed to be

impaired had almost always ingested some drug, and DREs usually correctly identified the type of drug taken.

Field Evaluation of the Los Angeles Police Department Drug Detection Procedure

February 1986, DOT HS 807 012

This project compared DREs' assessments of actual arrested suspects with independent analyses of blood samples drawn from the suspects. Findings showed that DREs correctly identified at least one drug type in 87 percent of suspects assessed as drug impaired. A standardized curriculum was developed to train other officers to employ the Los Angeles Police Department procedure in a national program called "drug evaluation and classification."

Evaluation of the Impact of the Drug Evaluation and Classification Program on Enforcement and Adjudication

December 1992, DOT HS 808 058

This study examined the effect of the DEC Program on impaired driving enforcement and adjudication. Eleven police agencies in five states with DEC programs were compared with similar police agencies without DEC. Prior to DEC implementation, arrests for drugged driving were very rare. After initiating the program, DEC sites showed increased drugged driving arrests and convictions while there were no similar increases in the comparison communities. In the DEC sites, drugged driving arrests were 1-2 percent of all impaired driving arrests. Overall, 1,842 suspects were evaluated in the DEC sites; drug presence was confirmed by chemical tests for most of the suspects accused of drug use; and most of the confirmed suspects were convicted.

Drug Evaluation and Classification (DEC) Procedures Validation and Improvement

In progress

This is a joint effort of NHTSA and the National Institute on Drug Abuse to assess the reliability and relative importance of each cue employed by DREs to diagnose suspects' drug impairment. Dosed subjects are examined by representative DREs under controlled laboratory conditions. Measurements and observations of clinical and psychophysical cues are recorded and compared with the drugs administered.

Drug Evaluation and Classification (DEC) Site Experience

In progress

This project will involve an in-depth examination of representative DEC sites to identify characteristics that distinguish successful active programs from those that are less successful. Key characteristics will be incorporated into a program model that can be emulated in other communities.

Development of Improved Drug Evaluation and Classification (DEC) Interview Procedures

In progress

This project will assess protocols used by DREs to interview arresting officers, suspects and other witnesses to identify those most effective in eliciting useful evidence and other information. A field test of the more promising protocols will be conducted to demonstrate their effectiveness.

C) MISCELLANEOUS DRUG RESEARCH

Laboratory Testing of Drug Screening Kits

In progress

This study is assessing the accuracy of several different models of disposable devices that screen urine specimens for various drugs. The drug categories of particular interest include cannabis, cocaine, amphetamines, benzodiazepines, and opioids.

National Survey of Drug Use and Driving: 1996

In progress

This project will determine the reported incidence of drug taking followed by driving and will obtain data on the specific characteristics of people and situations associated with episodes of drugged driving. A survey module of 56 questions will be attached to the 1996 National Household Survey on Drug Abuse under an interagency agreement with the Substance Abuse and Mental Health Services Administration. The survey will be administered in person to a national probability sample of approximately 14,000 drivers. Data will be used to establish the extent of the drugged driving problem and to provide information that can be used to guide development of countermeasures appropriately targeted toward drugged driving.

III. Occupant Protection

A) CRASH INJURY

Effectiveness of Safety Belt Use Laws: A Multinational Examination

1986, DOT HS 807 018

This report summarizes a workshop on the effectiveness of safety belt use laws. More than 80 experts from 14 nations met to review and discuss papers on (1) safety belt use laws, (2) safety belt use rates, (3) casualty reductions resulting from use laws, and (4) rear seat belt use and child restraints. Data from 20 nations was used for the workshop.

Evaluation of The Effectiveness of Child Safety Restraints

1987, DOT HS 807 141

The results of this study showed that half of crashes happened within 5 miles of home and 70 percent occurred within 10 miles. Severe crashes were just as likely to occur close to home as they were farther from home. Child safety seats with easy-to-use designs were more frequently used correctly. Serious injuries that were received by children who were properly restrained were most often caused by intrusion or flying objects. Lap-held children were very vulnerable to serious and fatal injuries. Lap-belted children had fewer injuries than did unrestrained children.

Over-Representation of Seat Belt Non-Users in Traffic Crashes

1988, DOT HS 807 326

Observations of driver belt use were linked with driver history records. During a 4-year period, unbelted drivers had 35 percent more crashes and 69 percent more violations than did belted drivers. Belt non-users had significantly more single vehicle crashes, rollover crashes, and crashes in which the driver was charged with a violation. Crash severity, vehicle deformation, and crash speed did not vary by belt use group. No significant relationships were found by belt use for reckless driving, alcohol violations, and reckless and alcohol combined. A telephone survey examined reasons for using and non-using belts and reviewed ideas to increase use.

Epidemiology of Motor Vehicle Injuries in Suffolk County, New York Before And After Enactment of a Seat Belt Use Law

1990, DOT HS 807 638

This population-based study of hospital and medical examiner reported vehicular trauma was conducted in Suffolk County. During the first year following enactment of the law, an 18 percent reduction in head and brain injury, 17 percent decrease in facial injuries, and a 20 percent decrease in forehead injuries were seen. However, a 35 percent increase in cervical strain was found. The findings show a clear shift in the pattern of injuries resulting from vehicle crashes, and a significant reduction in the more serious injuries after the safety belt use law was enacted.

Exploration of Impact Measures of Safety Belt Use Laws

1990, DOT HS 807 588 (Final Report)

1990, DOT HS 807 589 (Literature Review, Expert Team Comments, Indicator Catalog)

The National Safety Council recommended three indicators of safety belt use law impact and institutional data sources based on a literature review, experts' input, and a survey of data sources. The three are: 1) the "KABC" injury scale used on police crash reports, 2) the Abbreviated Injury Scale (AIS) used on Medical records, and 3) head and face injuries. Two sources satisfied most of the project's 13 evaluation criteria: A) the multi-state, before-and-after Major Trauma Outcome Study and B) the National Electronic Injury Surveillance System. The most promising approach would link police crash data with injury data in hospital medical records and trauma registries.

B) SURVEYS**Guidelines for Observing Child Safety Seat Use**

1987, DOT HS 807 128

This manual provided guidelines for collecting observational data needed to assess the use of child safety seats (CSS). Directions included observing CSS use, determining the extent of correct and incorrect installation of CSSs, and use of data forms.

Restraint System Use in 19 U.S. Cities

1991, DOT HS 808 147; 1992, DOT HS 808 148

This series of annual reports provides detailed observational data on use rates for manual and automatic safety belts, child safety seats, and motorcycle helmets. Data include belt use by make and year of automobile; belt use by city; belt use by age, seat position, and gender; safety seat use and misuse by manufacturer and model; and helmet use by law/non-law status and by driver/passenger. Driver belt use rose from 23 percent in 1985 to 51 percent in 1991; child safety seat use rose from 56 percent to 82 percent. In cities covered by state helmet use laws, driver helmet use was stable at 98 to 99 percent. Driver helmet use in non-law cities rose slightly from 32 percent in 1985 to 40 percent in 1991.

Survey of Occupant Protection Issues

In progress

This project is a national telephone survey of more than 8,000 persons aged 16 and older. Primary data are on safety belts and child safety seats. The survey also includes questions on air bags, bicycle/motorcycle helmet use, pedestrian safety, drinking and driving, speeding, and crash and injury experience.

C) IMPACT OF OCCUPANT PROTECTION LAWS

Evaluation of New York State's Mandatory Occupant Restraint Law

1985-1987

This was a comprehensive study of the first year of a belt law in the State of New York, the first state to adopt such a law. Belt use increased from 16 to 57 percent, then declined somewhat. It was estimated that 220 lives were saved and 3,500 serious injuries were avoided. Child restraint increased and the majority of surveyed adults favored the law. Of 30,000 belt convictions, 80 percent were for unrestrained drivers, 75 percent were men, and 90 percent of the fines were \$25 or less. Two thirds of tickets for unrestrained travel were written on routine patrol and 20 percent during crash investigations. Results of primary versus secondary enforcement could not be differentiated. The following reports document the study's findings:

- Volume I: Observational Surveys of Safety Restraint Use in New York State
1985, DOT HS 806 950
- Volume II: Attitudinal Surveys of Licensed Drivers In New York State
1985, DOT HS 806 951
- Volume III: Observational Surveys of Safety Restraint Use by Children in New York State
1986, DOT HS 806 972
- Volume IV: Enforcement and Adjudication of Violations of the Law
1987, DOT HS 807 077
- Volume V: Fatalities and Injuries among Motor Vehicle Occupants Covered by the Law
1987, DOT HS 807 078
- Volume VI: Final Summary Report
1987, DOT HS 807 079

Program Activities Associated with Safety Belt Use

1987, DOT HS 807 382 (Volume I: User's Summary)

1987, DOT HS 807 383 (Volume II: Research Report)

This effort summarizes the program activities of the 26 States and the District of Columbia that had active safety belt use laws by the end of 1986. Program activities were grouped into community support, employer support, PI&E, media efforts, enforcement, and adjudication. Case studies of 8 communities (four with use above 50 percent and four with use below 50 percent) were done. Higher use communities had better media penetration, tailored messages, and higher levels of enforcement of belt violations.

Report to Congress: Provisions of State Safety Belt Use Laws and Other Programmatic Factors Related to Increasing Safety Belt Use Levels

1988

This report reviewed reports of successful belt-use promotion experiences from the U.S. and Canada and provides information on why some states have higher belt use rates than do others and what needs to be done to increase usage rates. The report recommends well-publicized law enforcement as the key to increasing belt use.

Reports to Congress: Factors Related to Increasing Safety Belt Use in States With Safety Belt Use Laws

1989, DOT HS 807 409; 1990, DOT HS 807 529

These reports describe actions NHTSA took to identify the factors related to increasing belt use. The major finding was that enforcement coupled with active PI&E efforts continue to see increases in belt use rates, while programs that only have one or the other alone generally do not.

Safety Belt Usage Before and After Enactment of a Mandatory Usage Ordinance

1990, DOT HS 807 732

This study evaluated the impact of a local municipal ordinance in Lexington-Fayette, Kentucky requiring safety belt usage. The results indicated there was a substantial increase in safety belt use associated with passage and implementation of the ordinance. For example, driver belt usage increased from 36 percent to 76 percent.

D) ENFORCEMENT OF OCCUPANT PROTECTION LAWS**Selective Traffic Enforcement Program For Occupant Restraints**

1987, DOT HS 807 120

This study evaluated two enforcement strategies. The first, based on the Canadian model, had waves of intense enforcement activities (blitz) preceded by a public information campaign to call attention to the enforcement. The second strategy implemented public information in waves, but the enforcement was integrated into regular traffic enforcement. Blitz enforcement resulted in a substantial increase in belt usage followed by a decay over time. The integrated enforcement increased belt use about the same amount but the effect was sustained over time. A third site was intended as a non-activity comparison site. However, police in this site issued twice as many citations than were written in either treatment site but did not initiate any special public information program. No increases in usage rates were observed in the comparison site.

Use of Safety Restraints by Law Enforcement Officers Following Safety Belt Training and Passage of a State-wide Belt Law

1988, DOT HS 807 260

A safety belt program designed for the Maryland State Police was evaluated. Initial evaluation of the program, prior to the mandatory use law, found a significant increase in observed belt use from 21 percent prior to the program to 42 percent following the program. Following passage of the mandatory law (from which police officers are NOT excluded), observed use by the State Police was 91 percent.

Evaluation of Child Safety Seat Enforcement Strategies

1989, DOT HS 807 479

Nine community programs designed to increase child safety seat use through public information and education and enforcement were evaluated. Each community received a \$5,000 grant to assist its programs. Data were collected from over 5,700 vehicles carrying child passengers. There was no significant increase in the overall use of seats. However, there was evidence that the programs increased correct use of the seats being used.

Enforcing Child Passenger Safety Seat Laws

1990, DOT HS 807 631

The project studied the impact of overtime patrol and an intensified public information campaign on child safety seat usage and correct usage rates. The project results indicated that both usage and correct usage increased while the overtime enforcement was in place, but rates dropped somewhat after the special enforcement activity ceased.

Evaluation of FY 1987 Safety Belt Use Law State Enforcement Grants

1991, DOT HS 807 715

Law enforcement grants to 17 states were evaluated. The States initiated enforcement programs in over 100 communities, counties, or specific areas. From the 82 sites providing observation data, 55 appeared to experience an increase in safety belt use following their programs, 22 sites experienced no change, and five suffered a decrease. At least 58 sites could be identified as implementing "Elmira-type" enforcement programs. Of these, 41 programs had an increase in belt use, 14 had no change, and three saw a decrease in usage. The general results indicate that occupant restraint enforcement coupled with PI&E and officer training can lead to increases in safety belt use.

Evaluation of California's Safety Belt Law Change to Primary Enforcement

1994, DOT HS 808 205

On January 1 1993, California became the first state to implement an uninterrupted change from secondary to primary belt law enforcement. In the six study communities, the percentage of drivers observed wearing seat belts increased from 58 percent to 76 percent. Police officers participating in focus groups indicated that they were pleased with the change and had received no negative public reaction.

Local Police Enforcement, and Public Information and Education Strategies to Foster More and Proper use of Child Safety Seats by Toddlers

1994, DOT HS 808 120

This project evaluated the effects of enforcing both belt and child safety seat use laws (without additional funding) and providing public information and education to increase restraint use by children ages 1-5 and to increase proper safety seat use. Two Philadelphia suburbs showed significant increases in seat use and proper seat use compared to a control site. Belt use by drivers in the two suburbs also increased significantly.

Strategies for Addressing Barriers to Police Enforcement of Safety Belt Use Laws

In progress

This project will use a literature review, expert input, and focus groups to identify strategies that will prompt police to enforce safety belt use laws more actively. The project will involve people familiar with "Operation Buckle-Down Programs" and representatives of police departments that have successfully overcome enforcement barriers. It will also involve people familiar with departments that have had only partial success and police in departments that have not yet adopted enforcement programs.

Evaluation of 403 Grant Demonstration Programs for Statewide Occupant Protection special Traffic Enforcement Programs (sTEP)

In progress

This project will evaluate Section 403 demonstration programs in states which are currently implementing special Traffic Enforcement Programs (sTEP). Grant recipients are expected to conduct evaluations of the sTEP and its effect on the use of occupant protection devices. This project will provide a meta-evaluation, assessing the demonstration programs, reviewing the individual grant site evaluations and providing a synthesis of the demonstration program's effectiveness.

E) BARRIERS TO SAFETY BELT AND CHILD SAFETY SEAT USE**National Understanding and Acceptance of Occupant Protection Systems**

1986, DOT HS 807 025

A national telephone survey of individuals who drive or ride in cars was conducted in January and February 1986 on automatic safety belts, air bags, and mandatory use laws. The survey found that the public was generally unaware of automatic systems. Air bags were the preferred system.

Strategies to Increase the Use of Child Safety Seats, An Assessment of Current Knowledge

1986, DOT HS 807 116

Focus groups were used to investigate parent attitudes toward child safety seats, particularly for toddlers. Participants reacted to descriptions of program concepts intended to convert non-users into users. Recommendations included: increasing fines and driver's license points, strengthening and publicizing enforcement, improving child safety seat design, providing parents with more information on laws and seat features, and aiming communication at subgroups such as pregnant mothers of toddlers.

Strategies to Increase the Use of Child Safety Seats Among Toddlers (Volume I)

1987, DOT HS 807 118

In-depth interviews were conducted with parents to investigate attitudes toward use and nonuse of child safety devices for toddlers. There were differences between users and nonusers.

Participants also reacted to written descriptions of program concepts to increase child safety seat use.

Comparison of the Comfort and Convenience of Automatic Safety Belt Systems Among Selected 1988-1989 Model Year Automobiles

1989, DOT HS 807 467

A non-random sample of short, tall, and overweight drivers assessed the comfort and convenience of automatic safety belt systems in 17 different model automobiles. Comparisons were made among the systems, rather than to an absolute standard. The motorized systems and the two-point non-motorized systems had the fewest or least severe problems. Some drivers had problems with all systems.

Installation of Child Safety Seats in Selected 1988-1989 Model Year Automobiles

1989, DOT HS 807 464

The difficulty of installing child safety seats in 1988 and 1989 model automobiles was studied. Problems with the installation and use of child safety seats (CSS) differed by test vehicle but not by child seat. Use in the front seat appeared to present many problems as compared to the rear seat. This confirmed the recommendations of some manufacturers not to install CSS devices in the front seat of automobiles with motorized safety belt systems.

Identify Conditions of Safety Belt Use For Youth

In progress

This project will determine why teenagers do not use their safety belts more often. Observations and focus groups will be conducted in Texas, Idaho, Virginia, and Mississippi. Procedures will be developed to determine whether there are specific subgroups of teens who use belts less than do other teens, and whether there are specific conditions where teens tend to not use belts. Potential approaches to increasing belt use will be reviewed with teens.

F) INCENTIVES FOR SAFETY BELT AND CHILD SAFETY SEAT USE

Long-Term Effects of Employer-Based Programs to Motivate Safety Belt Use

1987, DOT HS 807 111

This report reviews the procedures and results of 28 different programs that had increased employees' use of vehicle safety belts at ten work settings. Key findings include: 1) safety belt use can be cost-effectively improved at corporations and institutions, 2) significant residual effects of belt use promotion remain long after program termination, 3) belt use gains can be increased with intermittent programs, 4) further research needs to determine optimal program-strategy scheduling, and 5) pros and cons of extrinsic rewards versus no-rewards for belt promotion need attention.

Commitment/Incentive Program to Increase Safety Belt Use on a University Campus

1987, DOT HS 807 110

This study was conducted before Virginia's safety belt use law was passed. Safety belt use on a university campus was increased by offering faculty/staff and students who returned signed "buckle up" pledge cards chances to win donated prizes.

Safety Belt Use & Automobile Insurance: Report to Congress

1988

The relationship between belt use and automobile insurance prices was estimated. It was found that where belts were used the average insurance bill dropped between 2 and 6 percent, \$9 to \$27 per vehicle insured. During this same period, auto claims costs per injury rose an average of 17.5 percent per year. Insurance incentives should be stated as actual savings rather than as a reduced rate of price increases.

Increasing Safety Belt Use by High Risk Drivers

1991, DOT HS 807 742

The study identified groups of non-belt users who were most likely to become involved in highway crashes, and developed and tested communication programs designed to increase belt use by the groups. The following groups were identified: Young Males (18-24), All Drinkers, Elderly (over 65), Unemployed Males, and Smokers. A program was developed for the Young Males group that involved a contest run by a radio station targeted at this age group. Prizes were awarded to drivers observed using belts whose vehicle had a contest sticker on it. No increase in safety belt resulted from the program. Follow-up research identified that contest stickers were not popular and that the contest rules were viewed as too complicated for the prizes.

G) EDUCATION

Assessment of Elementary School Safety Restraint Programs

1985, DOT HS 806 887

This evaluation identified elementary (K-6) safety belt education programs, reviewed their development, and performed administrative and impact assessments of the more popular programs. Six programs were assessed using treatment and comparison groups. Pre- and post-tests were used to determine changes in knowledge, attitude, and reported behavior. Teachers and administrators were interviewed. All programs lead to knowledge gains. No program showed significant change in attitudes, and there were no significant changes in belt use by the students.

Health Risk Appraisal and Safety Belt Use

1987, DOT HS 807 139

An evaluation was performed to determine the effectiveness of health risk appraisal programs for increasing safety belt use. Programs were field tested with and without supplemental belt

educational materials in work and medical settings in four states. Materials appeared to help increase belt use. The materials were considered by the programs to be very useful as a complement to their current activities.

Junior High School Occupant Protection Materials

1989, DOT HS 807 485

Based on a review of existing materials, discussions with subject experts and teachers, and a series of pilot tests, a set of draft curriculum materials was developed. The materials were designed to appeal to the wide range of developmental levels in students ages 12 to 15, and to maximize ease of use of the materials by teachers. The materials were structured in modules, with activities emphasizing student participation and self-discovery.

Strategies to Increase the Use of Safety Belts by Youngsters

1989, DOT HS 807 521

This project used a literature review, expert input, and focus groups with children in grades 3 through 10 and parents of children in grades K-12 to investigate strategies to increase youngsters' use of safety belts. Age-sensitive combinations of several program strategies and activities would be most effective (e.g., peer testimonials, belt law enforcement, penalties for new drivers, parent education about the importance of restraint use for children).

Encouraging Full-Time Use of Safety Belts Among Current Part-Time Users

1991, DOT HS 807 700

Studies have found that about a third of drivers report using their seat belts only some of the time. A study was conducted to determine whether safety belt messages highlighting the risks of not using belts all the time could induce these users to buckle up more often. A significant increase in belt use was found for individuals who received information, but the gain did not persist over time. It was felt that if this information were part of a larger belt program, the impact might continue.

Program Strategies For Increasing Car Seat Usage In Rural Areas

1995, DOT HS 808 274

Data indicate that most young children killed in crashes were not using safety restraints. The objective of this project was to identify strategies for increasing car seat use in rural areas, which tend to be over-represented in child fatalities. Focus groups were conducted with young females in rural Georgia and Tennessee. The project identified appropriate channels for program delivery, preferred message packaging, and opportunities for program activities.

Increasing Belt Use Among Rural Males

In progress

This project will develop marketing and campaign strategies to increase safety belt use among males ages 20-39 in rural areas, with emphasis on males driving pickup trucks and sport or utility vehicles. The project will involve focus groups in both Texas and Kentucky.

H) MISCELLANEOUS OCCUPANT PROTECTION RESEARCH

Risk Taking and Safety Restraint Usage of Young Drivers: Technical Report of Experimental Study

1985, DOT HS 806 811

This project tested three alternative methods for increasing belt use by young drivers, conducted additional analyses of data on risk-taking by young drivers collected in a previous study, and validated the technique for assessing risk perception used in this and the previous study. A safety booklet and a "simulated" law both increased belt use, with females showing a greater increase than males. Belt use was not related to perceptions of riskiness of driving, however non-users of belts, especially males, tended to be greater risk takers than belt users.

School Bus Safety Belts: Their Use, Carryover Effects and Administrative Issues

1986, DOT HS 806 965

Nine school districts operating large buses equipped with safety belts were used to explore whether the use of belts in school buses increased students' use of belts in automobiles. Reported student bus belt use varied from 80-100 percent for grade schools to 50 percent or less for high schools. No evidence was found that students who did not use car belts began using them after riding belt equipped buses. However, on-board student behavior was reportedly improved and belts lacked serious operating, maintenance, or other problems.

Patterns of Misuse of Child Safety Seats

In progress

The project will identify child safety seat (CSS) misuse for the major types of devices (infant, convertible, booster). Observations and interviews will be conducted in Pennsylvania, Missouri, Washington, and Mississippi. It will examine the relationship of characteristics that distinguish mis-users from correct users, including the characteristics of intentional misuse. Lastly, it will examine the problems associated with proper installation of CSSs and current passenger restraint systems.

Strategies to Secure Political Influence for Safety Belt Law Enforcement

In progress

The project will use a literature review, expert input, and group discussions to identify strategies that will motivate politicians to support police enforcement of safety belt use laws. The project will involve people familiar with NHTSA's "Operation Buckle-Down Program" and other people familiar with the politics of police innovation and enforcement activities.

IV. Speed and Other Unsafe Driving Actions

A) PROBLEM IDENTIFICATION

Safety Impact of Permitting Right-Turn-On-Red: A Report to Congress

December 1994, DOT HS 808 200

The Energy Policy Act of 1992 required NHTSA to conduct a study of the safety impact of permitting right and left turns on red lights. This report presents a brief summary of the current status of State implementation of laws permitting right and left turns at red lights, a brief review of previous research, and presents the results of analyses of available data assessing the safety impact of permitting right turns on red. The study found that the number of crashes due to right-turn-on-red was small, and thus the impact on traffic safety has been small.

Nationwide Survey of the General Driving Public Regarding Speeding and Other Unsafe Driving Behaviors

In progress

The objective of this study is to develop and implement a nationwide phone survey of the driving public to determine the reasons why, and situations in which, the public speeds or commits other unsafe driving infractions; the types of drivers involved; the kinds of countermeasures the public would support in these areas, etc. Phase I will include the development and pretest of the nationwide phone survey. In Phase II the driver survey will be implemented and data will be collected, analyzed, interpreted, and presented in a final technical report.

Determine the Conditions Under Which Speeding and Other Problematic Driving Actions are Hazardous

In progress

This is a nation-wide crash investigation study that will identify the specific conditions under which speeding and other problem behaviors (e.g. running traffic signals) are hazardous. The objective is to identify "problem types" for future countermeasure development. These "problem types" will be defined in terms of specific behaviors, specific types of drivers and vehicles, and specific traffic and environmental conditions. Data necessary to perform the study will be specified, and then collected by National Accident Sampling System (NASS) investigators trained for this purpose. A sample of at least 2,400 crash investigations is expected. Speed will also be monitored in the general traffic at crash sites to serve as a control.

B) ENFORCEMENT

Field Test of Combined Speed, Alcohol, and Safety Belt Enforcement Programs

1995, DOT HS 808 242; DOT HS 808 243; DOT HS 808 244; DOT HS 909 245

The purpose of this project was to determine the effectiveness of a combined enforcement program that focused on speed, alcohol, and safety belts. Well-publicized campaigns were implemented in three test communities. The results indicated that combined enforcement programs need to maintain high levels of enforcement and publicity to be successful.

DOT HS 808 242 is a summary report, DOT HS 808 243 is a site report for Knoxville, Tennessee; DOT HS 808 244 is a site report for Wichita, Kansas; and DOT HS 909 245 is a site report for Lexington, Kentucky.

Automated Speed Enforcement

In progress

This project is field testing the deterrence capability of well-publicized speed enforcement programs that used photo-radar systems to automatically detect speeding vehicles and cite the drivers. Significant reluctance has been encountered among police and other community authorities to implement the system as designed. The field test was limited to a single city where the approaches to photo-radar sites could be identified by motorists. Speeds in the immediate enforcement locations were reduced. However, no data were obtained to determine whether speeds were reduced throughout the geographic area of enforcement.

Electronic Vehicle Identification for Automated Traffic Law Enforcement: Strategies to Address Privacy and Other Concerns of Motorists and Police

In progress

This project uses a literature review, expert input, and focus groups to assess motorist and police concerns about using electronic vehicle identification to aid traffic law enforcement, e.g., for speeding in pedestrian zones and red-light running. Groups and experts conditionally favored automated enforcement -- only at dangerous spots -- for laws they respected, flagrant violators, and identified drivers, and if automation could get the highest-risk drivers off the roads. Their support also depended on whether privacy worries were sufficiently addressed, and if they perceived social benefits of stricter enforcement outweighed possible privacy losses. They favored electronics to prevent dangerous violations rather than detect and ticket violators, and suggested other steps to address their general concerns.

Laser-Based and Radar-Based Speed Enforcement Programs

In progress

This project is comparing a well-publicized speed enforcement program employing laser speed detection versus a matched program employing radar speed detection. Data will be obtained on citations and speeds throughout the geographic areas of enforcement.

V. Pedestrian and Bicyclist Safety

A) PROBLEM IDENTIFICATION

Identification of Alcohol-Pedestrian Crash Problems Among Culturally-Diverse Groups

In progress

A study is being conducted to develop an accurate picture of the involvement of various cultural populations in alcohol-related pedestrian crashes; to identify each group's cultural barriers and facilitators to reducing this crash problem; and to provide recommendations and strategies to reduce pedestrian/alcohol crashes.

Pedestrian and Bicyclist Safety Survey

In progress

NHTSA is conducting a national survey to assess public attitudes, knowledge, and behaviors regarding pedestrian and bicyclist safety. The survey is designed to assess the public's awareness of pedestrian and bicycling risks, its knowledge of safe walking and riding behaviors, its use of education and training programs, and to explore interactions among drivers, pedestrians, and bicyclists. The purpose of the study is to provide a background of information for agency guidance in developing and implementing programs to address these traffic problems.

Problem Identification Program for Pedestrians and Bicyclists

In progress

The goal of this project is to produce a software program that trains people in classifying police crash reports into the NHTSA/FHWA (Federal Highway Administration) pedestrian and bike crash types. The same program then will serve to create an operational data base that identifies pedestrian and bicyclist safety problems at the local level.

B) EVALUATIONS OF PUBLIC INFORMATION AND EDUCATION (PI&E) PROGRAMS

Public Information and Education Materials for Child and Adult Pedestrians

1985, DOT HS 806 682

The study was designed to identify, develop and produce safety messages for commonly occurring child and adult pedestrian crash situations that had not previously been addressed. TV spots were produced in finished form aimed at reducing intersection crashes of young and adult pedestrians and driveway crashes involving young children riding "big wheels." A 15-minute film aimed at older children and covering more complex crash situations (e.g., turning vehicles at intersections, backing vehicles in parking lots) was produced and subsequently tested by the Insurance Institute for Highway Safety (IIHS). In several test cities and counties, the IIHS found that crashes were more than 20 percent lower for 9-12 year olds, compared to similarly aged children in contiguous counties or comparison cities.

Development of Safety Information Materials and Media Plans for Elderly Pedestrians

1991

NHTSA, in conjunction with FHWA, examined the kinds of crash situations in which older pedestrians were involved and developed safety advice to minimize these risks. This information, contained in the publication, "*Walking Through The Years*", was made available to several national organizations (American Association of Retired Persons, American Automobile Association, National Safety Council) for dissemination to their large older audiences. The publication recommended, for example, that older pedestrians can improve their traffic risks by taking precautions in just two areas: "Seeing" -- being sure that you can see turning or approaching vehicles, especially at intersections; and "Being Seen" -- making sure that drivers can see you, whether you are in the street, a driveway, parking lot, or anywhere else vehicles travel.

Development and Evaluation of a Pedestrian Safety Program for Elementary School Bus Riders

1995

The study developed and evaluated a comprehensive pedestrian safety program for elementary (K- 6) school bus riders. Based on a review of existing materials, crash data, and state laws/regulations, a list of 113 behaviors were identified for inclusion in the program. The program contains materials for teachers, parents, and bus drivers. Five videos, K-6 curricula, and information pamphlets make up the program materials. All materials were evaluated in a New York State school district using a pre-post design with a comparison site. Significant improvements were achieved in critical knowledge and skills as a result of student participation in the program. The complete package is available from the National Safety Council (call 708- 775-2307) as the "Walk-Ride-Walk: Getting to School Safely" program.

Pedestrian and Bicyclist Safety Information for Driver Education and Licensing

In progress

This project will identify and package safety information from the pedestrian and bicyclist crash areas that will be useful for driver education and driver licensing activities.

Pedestrian Safety Awareness Program

In progress

A project is underway to develop and implement a national program to make pedestrians, motorists and relevant professions more aware of the pedestrian crash problem. Heightened awareness will increase the demand for, and acceptance of, pedestrian safety initiatives and countermeasures.

Training Course: Bicyclist and Pedestrian Safety and Accommodations

In progress

The Federal Highway Administration (FHWA) and NHTSA are jointly developing a 3-day training program for government representatives and public interest groups in the latest findings and foundations of the pedestrian and bicyclist areas relative to safety and

accommodations. The course is designed to increase awareness of these safety problems and provide countermeasure and design information.

C) COUNTERMEASURES

Walking in Traffic Safely (WITS) Program

1985, DOT HS 806-678 (final report); DOT HS 806 679 (literature review)

Several hundred pedestrians under the age of six die each year and several thousand more are injured in automobile crashes. This study was undertaken to develop a traffic safety program to reduce pedestrian accidents for preschoolers. A detailed literature search and an analysis of more than 10,000 crash reports were conducted to provide information on factors leading to preschool pedestrian crashes, and the frequency of these crashes by age. A set of countermeasures was developed and incorporated in curricular materials designed for use by preschoolers, their parents, and their teachers. The final set of products consisted of children's storybooks, parent guides, and an Instructor's Guide for teachers. Subsequently, the materials were incorporated by the National Association for the Education of Young Children (NAEYC) for use in the Headstart program. The final report describes the development of the Walking in Traffic Safely (WITS) program materials. The other report summarizes the results of a literature search and contains information on preschoolers' developmental capabilities, and on the nature and magnitude of preschool pedestrian accidents.

Pedestrian and Bicyclist Safety: A Review of Key Program and Countermeasure Developments During the 1980's

1992, DOT HS 808 108

This report reviews important countermeasure developments and program activities impacting on pedestrian and bicyclist safety over the past decade. Key national level policies and trends pertaining to pedestrians and bicyclists are highlighted to set the stage for the review.

Development, Implementation, and Evaluation of a Countermeasure Program for Alcohol-Involved Pedestrian Crashes

In progress

This large-scale research project addresses the problem of alcohol involvement in pedestrian crashes. Approximately 2,500 adult pedestrians killed in crashes each year since 1980 were intoxicated. The purpose of the ongoing research is to devise, develop, and test a set of countermeasures which a community can use to reduce alcohol-related pedestrian crashes. The researchers will work in close cooperation with a Community Traffic Safety Program (CTSP) in satisfying the goals of the project -- the production of a program manual and countermeasure materials that can serve as a guideline for other communities in designing and implementing a pedestrian alcohol countermeasure program.

Development, Implementation and Evaluation of a Pedestrian Safety Zone for Elderly Pedestrians

In progress

NHTSA and FHWA have undertaken a field study to safeguard older pedestrians. The project deals with the creation of pedestrian safety zones around areas of high crash frequency for older pedestrians. The zones are saturated with an appropriate mix of engineering, enforcement, and educational countermeasures. Phoenix, Arizona, and Chicago, Illinois are the two test cities for this ongoing project.

Development and Test of Bicyclist Countermeasures

In progress

This joint NHTSA/FHWA project will develop and evaluate selected behavioral and engineering bicycle safety countermeasures designed to prevent specific types of crashes occurring to bicyclists or to reduce injuries.

VI. Older Drivers

A) PROGRAM PLANNING

Traffic Safety Plan for Older Persons

1988

NHTSA's research is based upon a plan that was first developed in 1988 in response to the Transportation Research Board publication "Transportation in an Aging Society." The plan outlines research according to three main areas: Problem Identification, Program Development, and Program Evaluation.

Research and Development Needs for Maintaining the Safety and Mobility of Older Drivers

1989, DOT HS 807 554

NHTSA co-sponsored a conference with The National Institute on Aging (NIA), the Federal Highway Administration (FHWA) and the Centers for Disease Control (CDC) to identify the research needed to minimize older drivers' risk while maximizing their mobility.

Addressing the Safety Issues Related to Younger and Older Drivers

1993, DOT HS 807 957

This was a Report to Congress summarizing what is known about the safety issues related to younger and older drivers and what needs to be done about the issues.

Traffic Safety Plan for Older Persons

1993, DOT HS 807 966

This project updated the traffic safety plan for older persons originally developed in 1988, in response to the Transportation Research Board's study "Transportation in An Aging Society."

B) PROBLEM IDENTIFICATION

Licensing the Older Driver: A Summary of State Practices and Procedures

1989, DOT HS 807 443

This project documented state practices and procedures for licensing older drivers. Results suggest a need to evaluate existing programs and develop better methods of identifying high-risk drivers on the basis of performance capability, particularly age-related functional impairment.

Older Drivers: The Age Factor in Traffic Safety

1989, DOT HS 807 402

This study analyzed crash involvement rates based upon estimates of miles driven. The study indicated that motor vehicle crashes are not a major cause of death for older persons (0.5 percent for those over 60). Motor vehicle crash involvement per unit population is highest for

18 year olds (5 times those over 80) and declines steadily with increasing age until 70, at which point the rate increases somewhat. The study went on to show that older drivers have more crashes in urban areas, at intersections and driveways, during the day, and with one other vehicle. Also, older drivers in crashes were more likely to be cited for right of way and sign violations.

Driving Practices of Older Drivers in Rural and Urban Areas

1989, 1992

Under interagency agreements with the National Institute on Aging, NHTSA sponsored projects by Yale University and the University of Iowa to study how functional capability influences the driving practices of older drivers. The Yale study focused on an urban driving environment, the Iowa study on a rural environment. Research indicated that older drivers tend to self-adjust their driving to accommodate any reduction in functional capacity. The results also showed that older driver safety problems are concentrated among drivers who are either unaware of their difficulties or unable to make compensating adjustments to their driving. A series of journal articles on functional impairments and driving patterns among older drivers in a rural and urban communities have been published.

Decision Cues: Older Drivers Referrals for License Reexaminations

1992

This study in five states determined what police use as signs of driver deficiency when they report older drivers to the licensing agencies. Contrary to expectation, it was found that there was a decrease in referral for medical conditions for very old drivers and a slight increase for sensory deficiencies, notably poor hearing. The results were published in a Transportation Research Record. Further work is needed to improve the cues that police use in identifying at-risk older drivers.

Establish the Crash Risk for Specified Medical/Functional Conditions

In progress

Under an interagency agreement with NHTSA, Oak Ridge National Laboratories (ORNL) is reviewing the literature on crash rates and age-related driver limitations, to identify the potential of existing data bases for establishing firmer estimates. ORNL is currently analyzing selected data bases that may be useful in establishing the needed relationships.

Intersection Negotiation Problems of Older Drivers

In progress

A study is underway to identify the problems older drivers experience in negotiating intersections and determine the capabilities needed for older drivers to successfully perform the tasks.

Document the Mobility Consequences of Relinquishing the Driver License

In progress

Work performed under an interagency agreement between the Administration on Aging and the Department of Transportation/Department of Health and Human Services Coordinating Council on Human Services Transportation will document the broad array of concerns expressed by older persons who stop driving or surrender their driver licenses. It will also assess transportation remedies to address these concerns.

Identify the Practical Problems with Family or Friends Reporting of Drivers with Suspected Diminished Capacity

In progress

The study will examine the practical effects of existing State laws that either require or prohibit families and friends reporting of a potentially unsafe driver.

C) PROGRAM DEVELOPMENT

Develop Performance Assessment Techniques

In progress

The California Department of Motor Vehicles (DMV) has identified the functional limitations that need to be assessed for cognitively impaired and physically frail drivers. Under a cooperative agreement with NHTSA, the DMV is pilot testing assessment tools that can potentially detect the functional limitations that affect driving of older individuals.

Develop Training and Information Programs

In progress

This task order with the American Association of Motor Vehicle Administrators (AAMVA) Public Affairs and Consumer Education (PACE) Committee will identify, develop and disseminate more accurate information on older driver issues. PACE will examine how educational materials (pamphlets, speaker's bureau guide, etc.) can provide better information about older driver issues, both for older people and the general public. Work is being done in cooperation with the Transportation Research Board Older Driver Subcommittee On Public Information.

Model System to Improve Self-Regulation and Institutional Regulation of Driving by Older People

In progress

This study will identify the older driver groups that need assistance in determining when they should either change their driving patterns or stop driving. The study will also identify those in the allied medical community and other sources (people and programs) that are likely to come into contact with the selected groups. The study will determine how these individuals and their programs might detect the limitations and provide direct or indirect assistance to

older people in making the best judgment about driving. First consideration will be given to whether the individuals are capable of making the driving decision on their own.

VII. Novice and Young Drivers

A) PROBLEM IDENTIFICATION RESEARCH

Report to Congress: Addressing the Safety Issues Related to Younger and Older Drivers

1993, DOT HS 808 161

The report covers a variety of issues that affect younger and older drivers, presents a brief overview of past NHTSA efforts, and provides NHTSA's planned research agenda for younger and older drivers.

B) TRAINING DEVELOPMENT AND EVALUATION

Workshop to Identify Training Requirements Designed to Reduce Young Driver Risk Taking and Improve Decision Making Skills

1993, DOT HS 808 066

A panel of national and international experts in traffic safety was convened to identify research and development requirements for training designed to reduce driver risk taking and improve decision making skills. The report covers the discussions and recommendations. Areas covered include: issues and definitions in analyzing young driver risk taking, training as a means of reducing risk taking, ways to restructure current driver training efforts, and efforts needed to improve driver training.

Research Agenda For an Improved Novice Driver Education Program

1994, DOT HS 808 161

The report discusses why novice driver education may not be as effective as it could be, and explains why it is recommended that an improved program be an integral part of a graduated licensing system. The report concludes with a plan for research, development, and evaluation activities designed to restructure and improve novice driver education.

Parent Participation in The Training of Young Novice Drivers

In progress

This effort is part of NHTSA's redevelopment of novice driver education. The project will result in the development of materials and procedures for increasing the involvement of parents and other adults in the training and supervised driving of novice drivers.

Feasibility of New Simulation Technology to Train Novice Drivers

In progress

This effort is part of NHTSA's redevelopment of novice driver education. This project will determine the feasibility of developing and using some form of electronic simulation to enhance the safety training of young novice drivers. The effort will include a workshop with national experts to discuss the conceptual procedures and potential applications for using this type of technology in the training of novice drivers.

Training to Improve the Decision Making of Young Novice Drivers

In progress

This effort will develop a training module that results in less risky driving related behaviors through improved perceptual skills and decision making by young novice drivers. The module will be part of the advanced skills section of the new two-staged driver education program. It will be designed to stand alone and to be easily integrated into other related driver education activities.

C) COUNTERMEASURES

Understanding Youthful Risk Takers

June 1995, DOT HS 808 318

To make major inroads in the youth crash problem, countermeasures are needed that can deal effectively with youthful risk taking. Developing these countermeasures requires an understanding of the mechanisms underlying risk taking. This project is part of a broader effort by NHTSA to develop that understanding, and those countermeasures. The project looks at risk taking in a broader context than highway safety, and includes extensive literature review as well as a workshop with experts.

Addressing Peer Influence

In progress

This project will synthesize available information on the contribution of peer influence to processes involved in risk perception and risk taking by youth. It also will identify successful approaches in addressing peer influence among youth. Moreover, the project will produce draft guidelines for using or counteracting peer influence to reduce youthful risk taking that applies to traffic safety issues.

Matching Safety Strategies to Youth Characteristics

In progress

This project will describe the cognitive and perceptual functioning of youth, with particular attention to developmental factors, as they apply to traffic safety issues. The project also will determine how to match safety information (content and format) to cognitive and perceptual functioning of youth. Draft guidelines will be developed for implementing developmentally appropriate safety education and training to youth.

VIII. Miscellaneous

Responses of Women and Men to Traffic Safety Messages: A Qualitative Report

1994, DOT HS 808 091

This project explored gender differences about receptivity to traffic safety communications in order to help future development of effective media campaigns reaching women. A literature review and expert interviews revealed few data to characterize women involved in crashes or to describe their responses to advertising. Eight focus groups of men and women ages 25-59 provided responses to seven TV public service announcements. The report identifies several similarities and typical differences in male and female reactions to driving situations and safety advertising.

Review and Analysis of Community Traffic Safety Programs

1994, DOT HS 808 116 (Volume I); 1994, DOT HS 808 117 (Volume II: Appendix)

A Community Traffic Safety Program (CTSP) is an established unit in the community, sustained over time, that has public and private input and participation to an action plan to solve one or more the community's traffic safety problems. The purpose of this project was to examine CTSPs as they currently existed throughout the country for several objectives: 1) to determine how they got started, identify their key characteristics, recommend principles for developing new CTSPs and enhancing existing ones; 2) to identify and examine leadership and management styles; and 3) to compare CTSP program requirements with NHTSA's countermeasure products, and develop guidelines for countermeasures designed for CTSP use.

The Appendix contains nine detailed case studies of CTSPs selected for in-depth examination, and tabulations covering 251 of the 334 programs in the United States.

Highway Safety and U.S. Hispanic Communities: Issues and Strategies

In progress

This project is identifying major highway safety needs within Hispanic communities, as well as exploring ways to best promote highway safety within those communities. It includes discussions with representatives of agencies and organizations actively engaged with Hispanic communities in California, Colorado, Texas, Florida, the New York City/New Jersey area, and Washington, DC. It also includes focus groups with community members in each of these regional areas.

Analysis of Driving Histories of Attention Deficit Hyperactivity Disorder Subjects

In progress

This project is assessing the relationship of early childhood diagnosis of Attention Deficit Hyperactivity Disorder (ADHD) to later driving performance. A database is maintained that contains records on persons with ADHD, as well as age-mate controls without such disorders. Driving records are being added to the database. Analyses will assess whether ADHD subjects are over-represented in motor vehicle crashes and specific types of violations. The study also is assessing if specific treatment variables for ADHD relate to later driving records.

Campaign SAFE & SOBER

Ongoing

This ongoing campaign combines projects emphasizing enforcement of impaired driving, occupant protection violations, and speed and other unsafe driving actions, in coordination with heavy public information and education activities. A May 1995 report summarized how the first quarterly campaign materials were used in the 50 states and two territories.

Public Responses to NHTSA's Auto Safety Hotline

1993

This project used focus groups of vehicle purchasers and prior users of NHTSA's Auto Safety Hotline to recommend ways to promote the Hotline to foster reports of vehicle defects.

Public Responses to NHTSA's New Car Assessment Program (NCAP)

1993, DOT HS 808 285

This project used focus groups to 1) assess vehicle-buyer perceptions, needs, and desires concerning the delivery and presentation of motor vehicle safety-performance data, 2) identify potential uses of the New Car Assessment Program (NCAP) information in vehicle selection, and 3) gather preliminary information needed to plan an effective promotional campaign. The project generated recommendations for the NCAP Crash Test Program, presenting crash test information, disseminating test information, and promotional ideas.

Analysis of Capital Beltway Crashes and Focus Groups

1994

This project analyzed all crashes that occurred on the Washington Capital Beltway for a one-year period. Police crash reports from Virginia and Maryland were coded and crash types developed to describe the situation on the roadway. This project was done as part of NHTSA's contribution to the Capital Beltway Safety Team. After completion of the report, the safety team requested a similar analyses of truck crashes on the beltway. NHTSA also conducted a series of focus groups with drivers and truck drivers to assess their reactions to proposed solutions to the beltway problems.

Analysis of Capital Beltway Interchange Crashes and Focus Groups of Public Service Announcements

In progress

These new studies will further describe driver behavior difficulties with interchange segments of the Capital Beltway. The focus groups will assess motorists reactions to proposed safety messages intended to be aired on radio in the fall of 1995 and displayed on variable message signs along the Beltway.